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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,128	02/27/2004	Shin-ichi Uehara	Q80097	4671

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EXAMINER	
CHANG, AUDREY Y	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,128	UEHARA ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☑ All b)☐ Some * c)☐ None of:

1.☑ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/27/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claims 2, 9-12, 22, 26 and 4, 17-20, 24 and 28 are objected to because of the following informalities:**

(1). The phrase "when the distance between the longest line segment out of line segments, which are parallel with the line segment connecting the pixels display said image ..." recited in claim 2 is completely confusing and indefinite since it is not clear what exactly are these line segments. It is further not clear how does this "OD" distance is defined.

(2). The phrase "tan(1')" recited in claims 2 and 4 is confusing and indefinite since the claims fail to give definition and *physical meanings* to the phrase to make the scopes of the claims clear.

(3). The phrase "the distance ... becomes minimum" recited in claim 4 is confusing and indefinite since it is not clear how does this distance become minimum.

Claims 9-12, 22, 26 and 17-20, 24, 28 inherit the objections from their respective based claims. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Sandor et al (PN. 5,554,432).**

Sandor et al teaches a *lenticular lens sheet* having a plurality of cylindrical lenses wherein the lens has a pitch ranged between 150 to 250 lines per inch, or 0.169 to 0.102 mm, (please see column 6, lines 1-7).

This reference has therefore anticipated the claim.

4. **Claims 1, and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Momochi (PN. 5,528,420).**

Momochi teaches an *apparatus* for outputting image for stereoscopic vision wherein the apparatus comprises a *display panel* having a *plurality of pixels* forming pixels sections each section including a pixel for displaying image for the right eye and a pixel for displaying image for the left eye respectively, (please see Figures 4 and 5). The apparatus further comprises an *optical unit*, such as the a *lenticular lens consists a plurality of lenses*, for re-emitting and refracting image light from the display panel or pixels to *right eye and left eye of an observer*, respectively, (please see Figures 6-8). It is implicitly true that the optical unit will establish a three-dimensional visible *range*, which correspond to a three dimensional region that the left eye of the observer will *only* see the left eye image and the right eye of the observer will *only* see the right eye image. Momochi et al teaches that the lenticular lens could have a width of 200 mm and having a total of 1000 lenticular lenses, which means the pitch for each of the lenticular lenses is 0.2 mm, (please see column 10, lines 31-32).

With regard to claim 5, Momochi teaches that pixel sections consists two types of pixels, one for the right eye image and one for the left eye image.

With regard to claim 6, Momochi teaches that the optical unit is lenticular lens.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Ichinose et al (PN. 4,987,487).

Ichinose et al teaches a *stereoscopic image display* that is comprised of a *display panel*, (please see Figure 9), having a *plurality of pixel sections* (51) wherein each pixel section includes a *pixel* for displaying image for the right eye and a *pixel* for displaying image for the left eye, (51-an, 51-bn), and an *optical unit* (52) consists a *plurality of lenses* for refracting the image light from the pixels such that the left eye image from the pixels (displaying image for left eye) to reach left eye and right eye image from pixels (displaying image for right eye) to reach right eye only so that three-dimensional vision can be observed, (please see columns 6 and 7). Ichinose et al further teaches that the lenticular lenses has a pitch that is defined by the equation:

$P = 2l * D/(D+f)$, (please see equation (1) of column 7), with "2l" denoting the pitch of the left and right image pixels, D being the distance between the lenticular lens to a point in the three dimensional visible region defined by the lenticular lens and the display panel, and f being the focal length of the lenticular lens.

For a definite distance D (such as 500 mm) and a definite focal length (such as 1.56 mm), it is implicitly true that, $D/(D+f)$ is always less than one, and the equation can be rewritten as

$P < 2l$.

From Figure 9, with simple geometric calculation, one can then determine the pitch as follows:

Assuming the angular separation or angular spread of the image light from one of the pixel making with the normal line is *a*, then the following equations for the paraxial light beam will have the following equation, e/D = tan (*a*) = l/f'. Ichinose et al then teaches that f'=l*D/e, this means

tan (*a*) = e/D, or e = D* tan (*a*), now l is much less than e.

P < 2l < 2e= 2D* tan (*a*). This means the pitch is determined by the relationship of

P< 2D* tan (*a*).

This reference however does not teach that the angular separation to be one minute. However it is known in the art that a general eyesight is 1.0, which means the minimum angular separation, is 1/60 degree or one minute. This then means the pitch is

P< 2D* tan (1'), wherein D could be either at the minimum distance in the three dimensional visible range or at the optimum viewing position).

This reference also does not teach explicitly that the pitch assumes the values of 2 mm or less, or 0.124 mm or less or if the distance within the three dimensional visible range, (for either minimum distance or optimum viewing position) to be the ranges of claimed, (i.e., 213 mm or less or 350 mm or less). However, with the general equations being defined by Ichinose et al, it would have been obvious to one skilled in the art to plug in desired values to design an image display device satisfies the specific sizes for the benefit of allowing the display devices to be applicable for different application requirements.

With regard to claims 5, 9, 13, and 17 Ichinose et al teaches that pixel sections consists two types of pixels, one for the right eye image and one for the left eye image.

With regard to claims 6-7, 10-11, 14-15 and 18-19, , Ichinose et al teaches that the optical unit is lenticular lens. Although this reference does not teach explicitly that the optical unit could also be a fly eye lens, however fly eye lens is well known in the art as an alternative lens unit for providing directivity to direct left eye and right eye images to the proper eye respectively. Since fly eye lenses comprise a plurality of convex lenses it also has the advantage of providing parallax views to more than one

dimensional. Such modification would then have been obvious to one skilled in the art for the benefit of using a fly eye lenses design to achieve the stereoscopic image display and to allow the image has more than one directional parallax effect.

With regard to claims 8, 12, 16 and 20, Ichinose et al teaches that the display device such as liquid crystal display device can be used in the stereoscopic image display apparatus.

With regard to claims 21-28, Ichinose et al does not teach explicitly that the stereoscopic image display device is used in a portable terminal device including the various devices claimed. However it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Madham, 2 USPQ2d 1647 (1987).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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